CONSTRUCTION HINTS

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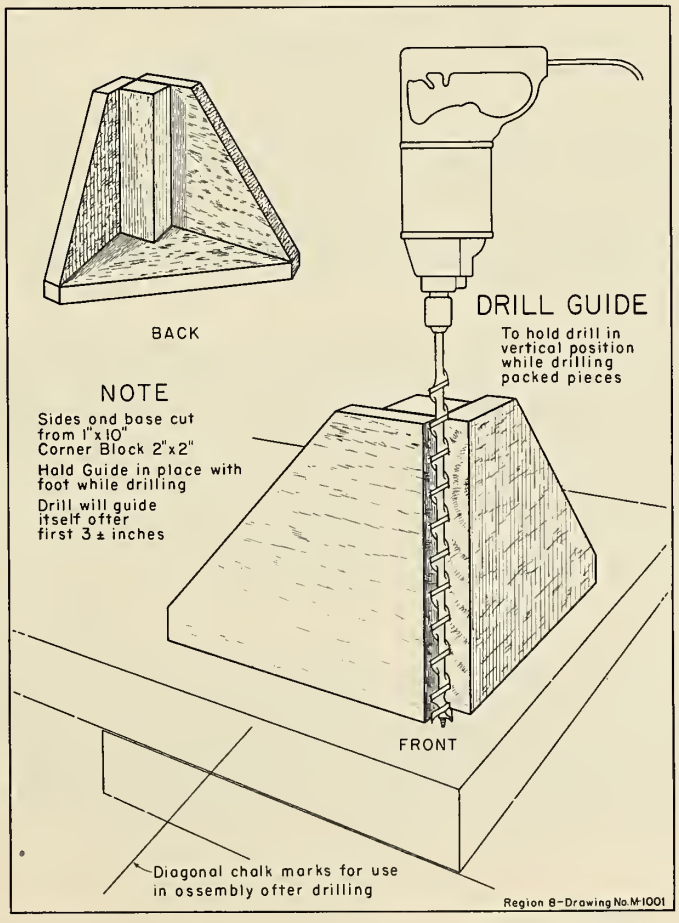

More Information on the Reos.

O. Wiederhold.

The above photograph illustrates a Reo dump truck at Camp S-62, Hackettstown, N.J. This camp has changed the front tires on its Reos from 34 x 7 to 32 x 6 using regular Chevrolet tires on the 34 x 7 rims. The truck illustrated has also had the rear tires changed to 32 x 6.

The above changes were made by the State C.C.C. officers to cooperate with the Washington Engineering Office in an experiment to determine the effectiveness of the smaller tires in eliminating steering knuckle failures. Such failures were frequent in this camp. While it is yet too soon to predict the final effectiveness of this change-over, so far, no knuckles have been broken since the smaller tires have been in use.

Numerous other camps have made this tire change and the opinion seems to be unanimous in that steering ease has been greatly increased. Reports have been received that the use of the new style steering knuckle has not eliminated the knuckle breakage. A number of failures have been reported despite the fact that these have been in use for only a short time.

GASOLINE ECONOMY

O. Wiederhold

LET'S PULL TOGETHER

While no accurate figures are available to show the average gasoline mileage of CCC trucks in Forest Service use, checks made in the field seem to indicate that somewhere between 5 to 10 miles per gallon would be a close estimate.

Assuming therefore that seven miles per gallon represented a good average and further that through the introduction of better maintenance this could be increased to eight miles per gallon, the yearly expenditure for gasoline could be reduced by approximately $160,000. This figure is, of course, approximate, but by no means exaggerated, and the possibility for reducing fuel costs should be readily apparent. In the following outline suggestions are offered for increasing gasoline mileage. These apply directly to Chevrolet and Reo trucks, since these represent the majority of Forest Service CCC equipment, and indirectly to all other types of equipment.

Tune Up

Carburetor float level:

Carburetor float levels should be maintained at the point recommended by the factory. In the Carter Carburetor used on Chevrolet, the float level should be 3/8" from the flat surface of the cover with gasket removed, to the lowest point of the float. This measurement is made with the float chamber cover removed and held in an inverted position.

On the Reo, the float level should be 1/64" from the top of the float chamber with the gasket removed, to the top of the float.

Many carburetor mechanics set gasoline levels a little lower than recommended by the factories. They base this practice on the necessity for counteracting the expansion of the gasoline, agitation in the float chamber if the vehicle is on rough going, or high pump pressures. The float level in any carburetor should be low enough that fuel will not flow out of the main jet when the engine is not in operation (an all-important consideration in down draft carburetors) and high enough that fuel will be readily picked up by the air stream as it flows through the venturi and past the main jet, particularly at the lower engine speeds.

Carburetor idle jets should be maintained as lean as possible, but if it becomes necessary to turn these clockwise all the way in, (full lean on the Chevrolet) either a high float level or dirty air bleed passage to the idle jet is indicated. A surprisingly large number of cases of this character have been found on Chevrolets in the field.

Accelerator, Pumps & Metering Pins

The accelerator pumps should be set for the proper season. Leaned in summer and richened in winter. The Carter Carburetor provides such an adjustment by changing the length of the pump stroke. A three-hole plate on the throttle shaft makes this possible.

The Carter Carburetor is a metering pin type in that a metering pin accuated by the same shaft that operates the accelerator pump, varies the gasoline supply to the main jet according to the degree of throttle opening. It is important from both an economy and power standpoing that the metering pin be properly adjusted. To make this adjustment a gauge is necessary. This can readily be secured for twenty-five cents ($.25) from car dealers or carburetor service stations.

On compressor, welder and shovel engine carburetors, accelerator jets constitute the point of considerable gasoline consumption. On some models of Zenith and Stromburg Carburetors the accelerator jet is operated by intake manifold vacuum. Adjustment may be either by controlling the length of the pump stroke or by changing the size of jets.

It is essential that carburetors be periodically removed for cleaning and adjustment if efficient operation is to be secured.

Engine Temperature

The temperature of the mixture entering the engine has a direct bearing on economy. The controlling elements of mixture temperature are the engine cooling system and manifold heat control valves. It is probably a safe estimate to say that 70% of the Chevrolets inspected in the field have the manifold heat control valves frozen either open or shut. Maintaining the proper water temperature is an important adjunctive to economy. Since the majority of the Chevrolets secured in 1935 did not employ a cooling system thermostat, means should be taken to maintain the engine temperature at not less than 150° F at all times. This may be accomplished by covering up part of the radiator, preferably the bottom, or by installing some type of cooling system theremostat.

Ignition

It goes without saying, of course, that tune up should include the cleaning (or replacing) and adjusting of breaker points, checking the action of automatic advance weights and vacuum control spark advance mechanisms and other essential parts of the ignition system. In this respect, the writer has always secured the greatest economy by carrying the spark advance to the point just below perceptible detonation with a hot engine. The use of so-called octane selectors on late type engines substantiates this practice. Spark plugs should also be cleaned or replaced and most important of all, engine compression should be brought up to the proper value. This should be approximately 90 lbs. in the Chevrolet and 80 lbs. in the Reo. These readings are taken with wide open throttle and at starter speed.

It is impossible to obtain economy without compression in anybody's engine. Compression is a function of valve and ring condition, repairs to which naturally involve major expenditures. On the other hand, general tune up involves only those factors that can be improved without involving major costs for labor or materials.

General

The following additional list of factors materially increase gasoline consumption:

1. Underinflated tires.
2. Too heavy an oil in engine, transmission or rear.
3. Excessive engine speeds.
4. High altitudes.
5. Excessive acceleration (getaway).
6. Too much time idling.
7. Excessive fuel pump pressures (should be 2½ to 3 lbs.).
8. Dirty or restrictive air cleaners.
9. Faulty operation of carburetor chokes.
10. Loose jets in the carburetor.

While the foregoing tune up procedure applies principally to trucks, similar operations can be applied to engines operating heavy equipment. Many of these incorporate carburetors that have adjustable high speed jets. The 55 Cletrac is a good example. The writer has found the proper adjustment on the Cletrac carburetor to be from 1½ to 2½ turns open. Checks in the field disclosed settings anywhere from 1½ to 4½ turns open.

It is felt that a great deal can be accomplished in the way of increasing fuel economy and with very little effort or expense. Cooperation is needed.

LET'S PULL TOGETHER.

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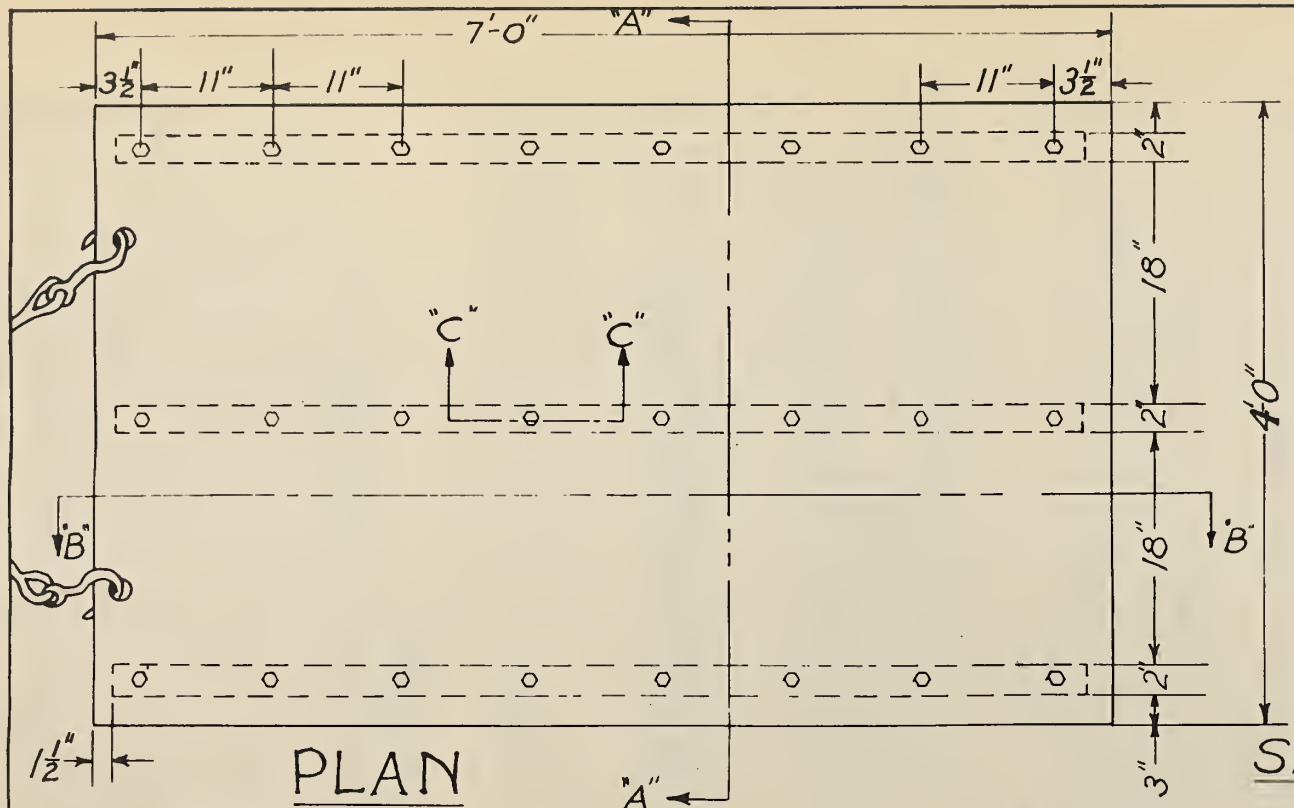
Signs of Safety

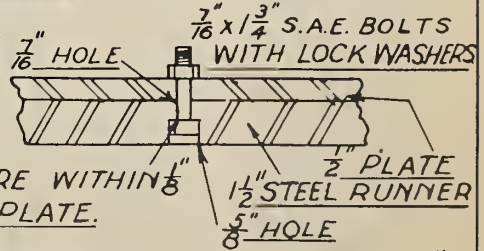
Drive Carefully - You Might Want to Drive Again!



PLAN

SECTION THRU "A-A"

SECTION THRU "B-B"



COUNTERBORE WITHIN 1/8" OF STEEL PLATE.

ENLARGED SECTION "C-C"

ROCK SLED

SCALE 1"&3" = 1'-0"

TO FACILITATE BENDING SPLIT ENDS OF PLATE 6" IN CENTER WITH CUTTING TORCH. CENTER RUNNER WILL COVER SPLIT. AFTER 7/16" HOLES ARE DRILLED FOR BOLTS, COUNTERBORE 5/8" HOLES IN RUNNERS FOR BOLT HEADS.

NUTS PROTRUDING ABOVE PLATE PREVENT LOAD FROM SLIPPING OFF WHILL MOVIING.

U. S. FOREST SERVICE, REGION 6

MECHANICAL IMPROVEMENTS & REPAIRS

ROCK SLED

FOR HAULING LARGE ROCKS.

SUBMITTED BY FRANK GRAY

FOREST MT. HOOD DATE 4-2-38

PORTLAND, ORE. SKETCH 043